Attachment 1

John Cummings' Vonage Presentation on 9-1-1 Services (May 12, 2005)

VONAGE

THE BROADBAND PHONE COMPANY

John Cummings, ENP
Vice President, 9-1-1 Services

Timeline

VONAGE[1]
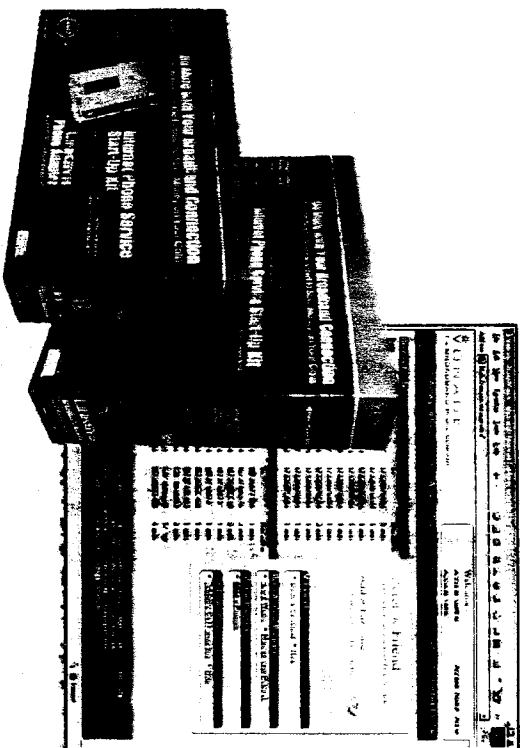### THE BROADBAND PHONE COMPANY[2]

2001 – 2003
- Research and Development
- Market Testing
- Product Launch

2004
- National Retail Launch
- Global Expansion Commences with Canada and the U.K.

2005
- Continuing Global Expansion
- Wi-Fi Phone Launch
- Videophone Launch

"Since its launch in April 2002, Internet telephony company Vonage has been a rip-roaring success."[*]
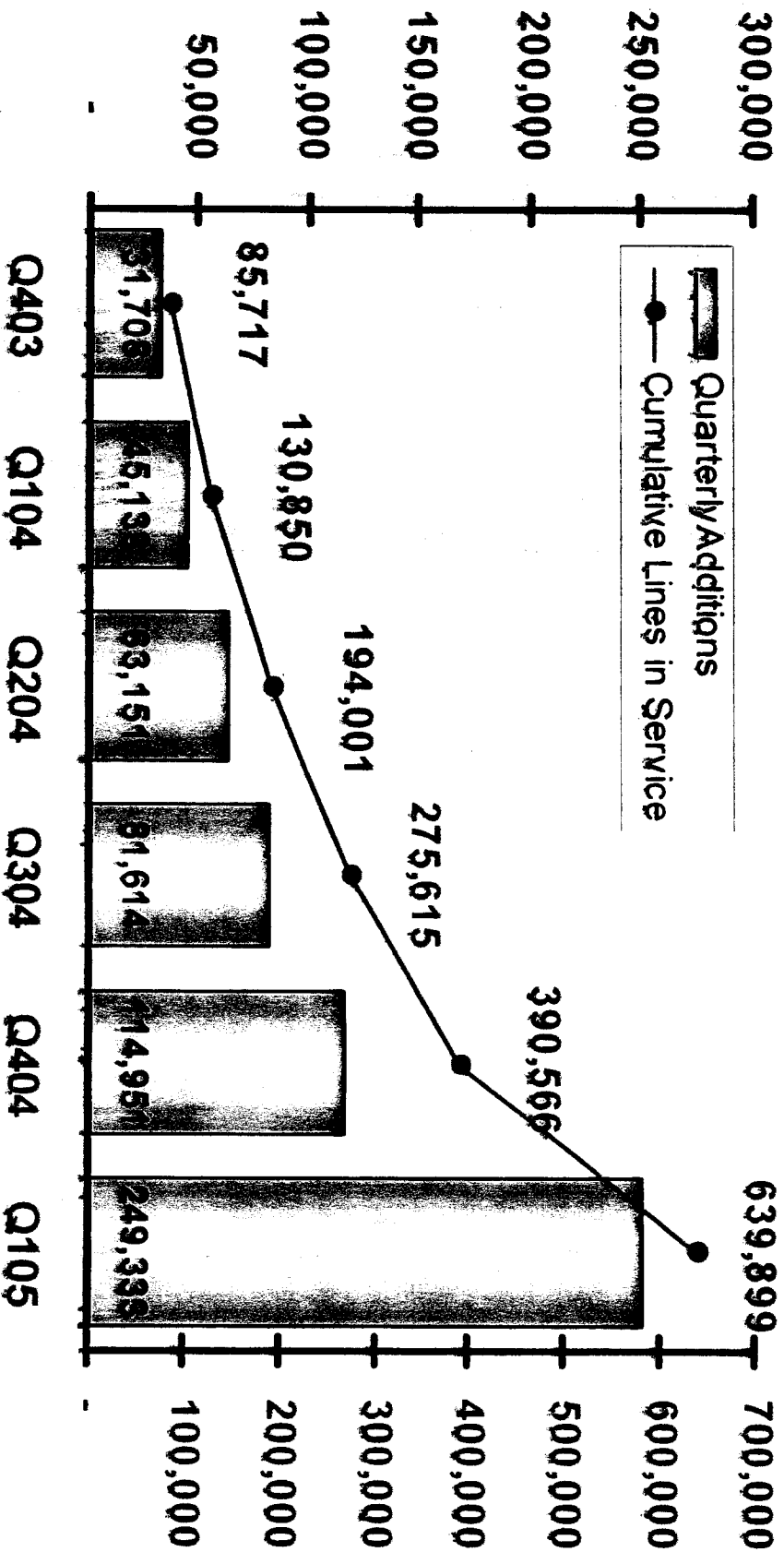
-BusinessWeek Online-

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Total Vonage Lines

Legend: Quarterly Additions / Cumulative Lines in Service

Quarter	Quarterly Additions	Cumulative Lines in Service
Q403	31,708	85,717
Q104	45,133	130,850
Q204	63,151	194,001
Q304	81,614	275,615
Q404	114,951	390,566
Q105	249,333	639,899

Wireline 9-1-1

Wireline Enhanced 9-1-1
Call Flow Diagram
(Simplified)

9-1-1 Call

ILEC Central Office

Selective Router or
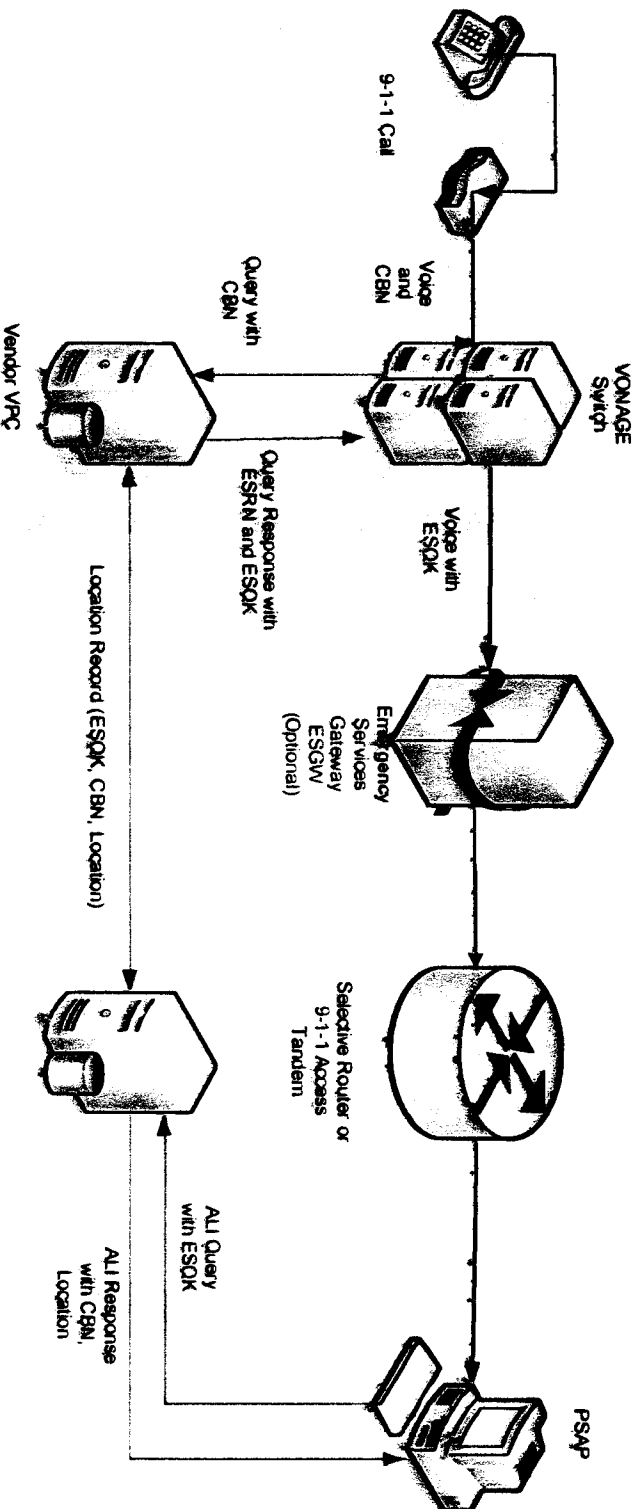9-1-1 Access
Tandem

PSAP

ALI Query

ALI Response
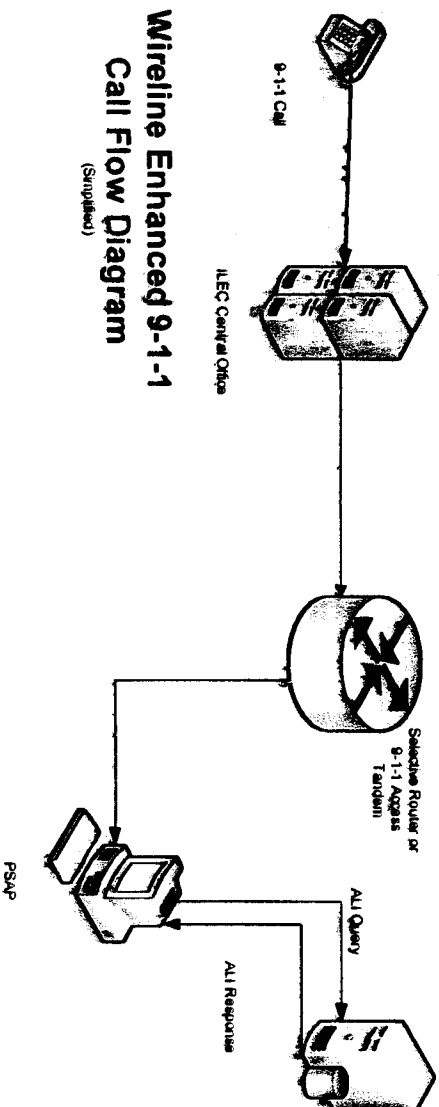
- **Call Back Number (CBN) is within three NPAs**

  - NPA-NXX Ranges pre-defined for 9-1-1 Router and provisioning systems

  - Some 9-1-1 Routers and PSAPs using CAMA Signaling (8 Digit)

- **All customers are provisioned in advance**

- **CLEC providers given access to provision customers**

Wireline 9-1-1 Limitations

- NPA-NXX ranges pre-defined – limits ability to deliver CBN

- No ability to deliver nomadic call, even if location determined by intercept

- Provisioning done by batch process – slows ability to update after customer move

- Addition of geographically compliant CBN requires special treatment

  - PSAP will attempt to confirm CBN

  - Customer or other callers may not recognize CBN

  - Negative impact to number availability

- No path to NENA "i-2", "i-3" or "Next Generation 9-1-1"

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VoIP Enhanced 9-1-1

Enhanced 9-1-1 Call Flow
Diagram
(Simplified)

9-1-1 Call

Voice and CBN

VONAGE Switch

Query with CBN

Vendor VPC

Query Response with ESRN and ESQK

Voice with ESQK

Emergency Services Gateway ESGW (Optional)

Location Record (ESQK, CBN, Location)

Selective Router or 9-1-1 Access Tandem

ALI Query with ESQK

ALI Response with CBN, Location

PSAP

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Benefits

- Voice path to Selective Router provider agnostic
  - Standard voice trunks from ILEC or CLEC providers
  - Can be IP based if available (NENA I-2 and beyond)
- Pre-provisioning required for ESQK pool – limited number of records
- Same construct as Wireless Enhanced 9-1-1
  - Data paths established in many areas
  - Allows for pooling of ESQK and equivalents
- Allows for foreign NPA-NXX
- Allows for nomadic call delivery
  - Call Intercept Center
  - Location determination technology (future)
- Allows for call delivery to 9-1-1 network where data path not established

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Requirements

- Access to Selective Router / 9-1-1 Tandem for voice trunk termination

- Ability to acquire and provision ESQK pools

- MSAG data access for address validation

- Real time update access to ALI database through wireless-like methods

  - ALI Steering

  - PAM Interface

  - ALI Push/Pull Methods

Where we are now!

- Signed NENA/VON Agreement – Look to continue active involvement

- Hired 9-1-1 experienced vendors to implement I-1, I-2 and beyond

- Encouraged customers to provide emergency location information

- Implemented I-1 solution in all areas

- Roll Out of E9-1-1 in Select Locations

Vonage 9-1-1 Phased Deployment

1. Commitment to Public Safety

- Change from 9-1-1 location opt-in to auto-in with disclosure

- Encouraging updates for nomadic customers

- Dedicated Vonage 9-1-1 staff

- Public and Public Safety Industry participation and leadership

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Vonage 9-1-1 Phased Deployment

2. Basic 9-1-1: Voice calls to PSAP via best route

- 10-digit access where answered by PSAP staff

- Voice trunks to 9-1-1 network when available

  · Regulatory Roadblocks

  · Contractual Issues

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Vonage 9-1-1 Phased Deployment

3. Private PSAP for location determination and routing when needed

- Help determine location prior to delivery

- Time or information loss?

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Vonage 9-1-1 Phased Deployment

4. Enhanced 9-1-1: Call Back Number and Location information

- Interface to ALI when available

- Deliver ANI/ALI in ALI record for Native and Non-Native numbers

- Private Call Center when needed

- Migratory Path to IP-based PSAP solution when defined (NENA I-3, CISC?)

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Questions?

Feedback?

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John Cummings, ENP

Vice President, 9-1-1 Services

John.Cummings@Vonage.com